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Local correlations and deviations of energy scales from SI-STM in Bi-2212 KYLE MCELROY, JACOB ALLDREDGE, University of Colorado Boulder, KAZUHIRO FUJITA, Cornell University, GENDA GU, Brookhaven National Laboratory, HIROSHI EISAKI, Institute of Advanced Industrial Science and Technology, S. UCHIDA, Department of Physics, University of Tokyo — One of the key difficulties in understanding the cuprate superconductors is reconciling the many probes that have been used to investigate them. In particular, in one of the most studied materials BSCCO-2212, this comparison is complicated by the striking atomic scale inhomogeneity that is seen in the electronic structure. We will present spectroscopic imaging scanning tunneling microscopy studies which show that the dominate energy scales are tied together not only as a function of doping but locally. This implies a single parameter that allows much of the low energy structure to be predicted. In addition, local structures which cause deviations in the ability of this single parameter to fit the data correspond to other phenomena previously described.

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